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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/562,792	12/29/2005	Kenya Hori	0438887-0182	8756

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MCDERMOTT WILL & EMERY LLP
600 13TH STREET, NW
WASHINGTON, DC 20005-3096

EXAMINER	
SANEI, HANA ASMAT	

ART UNIT	PAPER NUMBER
2889	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/562,792	HORI ET AL.	
	Examiner	Art Unit	
	HANA A. SANEI	2889	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 August 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 3-8* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 December 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *6/6/08*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

The Preliminary Amendment, filed on 8/25/08, has been entered and acknowledged by the Examiner.

Claim(s) 1, 3-8 are pending in the instant application.

Claim(s) 2 has been cancelled.

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claim(s) 1, 3, 5-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Dobson et al (US 6265823 B1).

Regarding Claim 1, Dobson teaches a pair of electrodes (2, 6, "electrodes," Col. 1, lines 6-11 & Col. 2, lines 26-28; See at least Fig. 1) facing each other; and a phosphor layer ("semiconductor quantum particles," used in the electroluminescent light emitter, Col. 4, lines 15-18) interposed between the pair of electrodes (2, 6) and including a semi-conductive phosphor fine particle in which at least a part of a surface is covered with a conductive organic material ("quantum particle layer embedded in

polymers such as PPV or PVK," Col. 4, lines 47-50), wherein the conductive organic material (PVK, poly-n-vinylcarbazole, Col. 4, lines 47-50) is chemically adsorbed on the surface of the semi-conductive phosphor fine particle ("quantum particle layer," Col. 4, lines 47-50). It should be noted that since poly vinylcarbazole contains an amino functional group, chemical adsorption does take place.

Regarding Claim 3, Dobson teaches that the semi-conductive phosphor fine particle ("semiconductor quantum particles," Col. 4, lines 15-18) has a particle diameter of 1 □m or less ("semiconductor quantum particles is intended as reference to semiconductor material in shapes having thicknesses in one or more dimensions approximately of the order of 1-50 nm," Col. 1, lines 25-29).

Regarding Claim 5, Dobson teaches that the phosphor layer ("semiconductor quantum particles," Col. 4, lines 15-18) is so configured that the semi-conductive phosphor fine particles are dispersed in a transparent conductive matrix ("quantum particle layer embedded in polymers such as PPV or PVK," Col. 4, lines 47-50). It should be noted that poly vinylcarbazole are characteristically transparent.

Regarding Claim 6, Dobson teaches that an electron transport layer ("electron transporting layer," Col. 4, lines 50-54) between the phosphor layer ("semiconductor quantum particles," Col. 4, lines 15-18) and at least one of the electrodes (2, 6).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claim(s) 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dobson et al (US 6265823 B1) in view of Tsukada (US 4937150).

Regarding Claim 4, Dobson teaches the invention set forth above (see rejection in Claim 1 above). Dobson fails to teach semiconductive phosphor fine particles including oxides from the group consisting of Zn, Ga, In, Sn and Ti.

In the same field of endeavor of **semiconductive phosphor fine particles**, Tsukada teaches an electroluminescent element (Col. 5, lines 14-16) having a semiconductive phosphor fine particle ("ultrafine grains of luminescent material," Col. 3, lines 1-3) including oxides from the group consisting of Zn, Ga, In, Sn, and Ti (ZnO:Zn, Col. 3, lines 29-32) in order to provide an *ultrafine* electroluminescent element with the capability to exhibit high luminance while being driven at a low voltage (Col. 3, lines 25-27). Furthermore, Tsukada teaches that the semiconductive phosphor fine particle is provided as either sulfides (as was taught by Dobson) or as oxides (Col. 3, lines 29-33), thus exemplifying recognized equivalent materials of the semiconductive phosphor fine particles in the art.

Therefore, it would have been obvious to one of ordinary skill in the art, at the time of the invention, to modify the composition of the semiconductive phosphor fine particle, as disclosed by Tsukada, in the EL device of Dobson in order to provide an *ultrafine* electroluminescent element with the capability to exhibit high luminance while being driven at a low voltage.

3. Claim(s) 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dobson et al (US 6265823 B1) in view of Hseuh et al (US 5587329).

Regarding Claim 7, Dobson teaches the invention set forth above (see rejection in Claim 1 above). Dobson fails to *exemplify* the use of thin film transistor.

In the same field of endeavor, Hseuh teaches an active matrix for an electroluminescent display as conventional in the art ("thin film active matrix electroluminescent displays are well known in the art and are used as fiat panel displays in a variety of applications, Col. 1, lines 16-18). Hseuh teaches the suitability of using a thin film transistor connected with at least one of the pair of electrode (See at least Figs. 1 & 2l) for the purpose of essentially preventing crosstalk between respective pixels as a result of the actively driven matrix.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the driving of the electroluminescent device, as disclosed by Hseuh, in the invention of Dobson in order to ensure the prevention of crosstalk between respective pixels and to choose from one of the configurations disclosed by Hseuh, since Hseuh teaches the suitability of using an active driven electroluminescent device and it has been held to be within the general skill of an artisan to select a known material or configuration on the basis of the intended use [See MPEP 2144.07].

Regarding Claim 8, Dobson teaches a luminescent array (See at least Fig. 1) in which phosphor elements ("semiconductor quantum particles," used in the electroluminescent light emitter, Col. 4, lines 15-18) are arranged in a plane (in the

vertical axis, y-axis, Fig. 1), wherein the phosphor element comprises: a pair of electrodes (2, 6, "electrodes," Col. 1, lines 6-11 & Col. 2, lines 26-28) facing each other; a phosphor layer ("semiconductor quantum particles," Col. 4, lines 15-18) interposed between the pair of electrodes and including a semi-conductive phosphor fine particle ("semiconductor quantum particles," Col. 4, lines 15-18) in which at least a part of a surface is covered with a conductive organic material ("quantum particle layer embedded in polymers such as PPV or PVK," Col. 4, lines 47-50). Dobson fails to exemplify the use of thin film transistor.

In the same field of endeavor, Hseuh teaches an active matrix for an electroluminescent display as conventional in the art ("thin film active matrix electroluminescent displays are well known in the art and are used as fiat panel displays in a variety of applications, Col. 1, lines 16-18). Hseuh teaches the suitability of using a thin film transistor connected with at least one of the pair of electrodes (See at least Figs. 1 & 2l); a plurality of x electrodes (114, "select line," Col. 2, lines 64-65), in parallel with each other, extending in a first direction in parallel with a face of the luminescent array; and a plurality of y electrodes (116, "data line," Col. 2, lines 65-66) extending in parallel with a second direction, orthogonal to the first direction (114 being orthogonal to 116), in parallel with the face of the luminescent array, wherein a thin film transistor (TFT, Fig. 1 via 102) of the luminescent array is connected with the x electrode and the y electrode, respectively (See at least Figs. 1 & 2l) for the purpose of essentially preventing crosstalk between respective pixels as a result of the actively driven matrix.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the driving of the electroluminescent device, as disclosed by Hseuh, in the invention of Dobson in order to ensure the prevention of crosstalk between respective pixels and to choose from one of the configurations disclosed by Hseuh, since Hseuh teaches the suitability of using an active driven electroluminescent device and it has been held to be within the general skill of an artisan to select a known material or configuration on the basis of the intended use [See MPEP 2144.07].

Response to Arguments

Applicant's arguments filed on 8/25/08 have been fully considered but they are not persuasive.

A. In response to Applicant's arguments that Dobson et al (US 6265823 B1) does not disclose the claimed invention, the Examiner respectfully disagrees.

Examiner maintains that at least a part of the claimed conductive organic material (PVK, poly-n-vinylcarbazole, Col. 4, lines 47-50) is chemically adsorbed on the surface of the semi-conductive phosphor fine particle ("quantum particle layer," Col. 4, lines 47-50). Examiner introduces, for purposes of evidentiary use, JP 56-125748, in which Inoue et al teaches that a composition that includes PVK adsorbs a dye sensitizer such as ZnO (Abstract), thereby teaching that at least a part of the poly-n-vinylcarbazole material may reasonably adsorb onto a metal oxide.

Finally, Dobson does indeed teach the luminescent array (See at least Fig. 1) in which phosphor elements ("semiconductor quantum particles," used in the

electroluminescent light emitter, Col. 4, lines 15-18) are arranged in a plane (in the vertical axis, y-axis, Fig. 1). Here, the phrase "in a plane" is indicative of any predetermined axis (horizontal or vertical).

For the reasons stated above, the rejection of the claims is deemed proper.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a). A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hana A. Sanei whose telephone number is (571)-272-8654. The examiner can normally be reached on Monday- Friday, 9 am - 5 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Minh-Toan Ton can be reached on (571) 272-2303. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published

applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Toan Ton/
Supervisory Patent Examiner
Art Unit 2889

/ Hana A. Sanei /
Examiner